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ABSTRACT

This document represents the New Jersey State Library Technology Plan for 1999-2001. Contents include: the mission statement; technology planning process of the Technology Committee (convened by the State Library); specific goals of the Technology Plan 1999-2001; technology assumptions for the operational library and statewide library services; goals statements for the operational library and statewide services; library services currently offered which utilize technology, including the State Government Information Services (SGIS), the Library Development Bureau (LDB), the Library for the Blind and Handicapped (LBH), and Information Technology (IT); staff technological expertise of the LDB, LBH, IT, and Technology and Customer Committee; staff and patron training to make effective use of technology-based library services; equipment and services currently available to provide technology-based library services (for the State Library and LBH); cabling and electrical support for technology-based library services (State Library and LBH); funding available for technology-based library services; technology-based services that will be offered in years 1999-2001; staff and patron training required to make effective use of new or expanded technology-based library services that will be implemented in the next three years; equipment, services and upgrades required to provide technology-based library services for years 1999-2001; upgrades to cabling and electrical support required to implement future technology-based library services; and the evaluation plan measuring the effectiveness of technology-based library services for the State Government Information Services, Library Development Bureau, Library for the Blind and Handicapped, and Information Technology for years 1999, 2000, and 2001. (AEF)

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New Jersey State Library Technology Plan 1999 – 2001

Prepared by the Staff of the New Jersey State Library
Edited by Elizabeth A. Breedlove

R.L. Bland

U.S. DEPARTMENT OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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New Jersey State Library Technology Plan, 1999 - 2001

John H. Livingstone, State Librarian

Prepared by the Staff of the New Jersey State Library
Edited by Elizabeth A. Breedlove

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affiliated with Thomas Edison State College
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New Jersey State Library Technology Plan, 1999 - 2001

Mission Statement

The mission of the New Jersey State Library is to lead in the provision, promotion and support of excellent library and information services to state government and to all the people of New Jersey. The mission is accomplished through:

1. a law library and legislative reference service;
2. a general reference and interlibrary loan service;
3. a documents depository service;
4. an advisory service to all types of libraries;
5. coordination of a statewide system of libraries;
6. administration of state and federal grant and aid programs; and
7. a program of direct public services to blind and handicapped residents.

The State Library maintains two operating libraries -- the State Library itself and the Library for the Blind and Handicapped. Through its Library Development Bureau, extensive consulting services and financial assistance are provided for libraries and the statewide library network. The State Library also administers branch libraries which provide information services to the Department of Environmental Protection, Department of Transportation and the Department of Banking and Insurance.

There are four bureaus within the State Library that provide and/or support the provision of technology-based library services.

- **The State Government Information Services Bureau (SGIS)** is responsible for providing information to state government researchers, students and faculty of Thomas Edison State College and the citizens of New Jersey.
- **The Library Development Bureau (LDB)** provides consultant services and technical assistance to create, improve and strengthen library/information and literacy services throughout the state.
- **The New Jersey Library for the Blind and Handicapped (LBH)** provides a range of services to New Jersey residents who can not read conventional printed material due to visual, physical or neurological handicaps. The Audiovision Radio Reading Service broadcasts readings of daily local newspapers on the air and provides special interest programs to New Jersey residents who

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- qualify for LBH services.
- **Information Technology (IT)** encompasses the technical staff that supports all aspects of technology internal and external to the State Library. The unit provides support services for the State Library's websites, Statewide Electronic Interlibrary Loan System and the HUB Library Network.

Technology Planning Process

In response to the impact of recent technological innovations in information delivery, the State Library convened a Technology Committee composed of members from the following units: State Government Information Services, Library Development, Information Technology (IT) and the Library for the Blind and Handicapped. This committee was given the charge to prepare a three year Technology Plan with implementation steps which would expand the State Library's use of electronic and digital information technology. A draft of the plan was reviewed by a wide variety of State Library staff members. The plan was then reviewed and approved by the State Librarian.

The Technology Committee will review the plan yearly in order to keep pace with technology and technology-based library services which are changing dramatically. The committee will update the plan as necessary during the three year cycle.

Technology Plan

The Technology Plan 1999 - 2001 supports the State Library's mission with specific goals and action plans that will:

1. provide the library's public with convenient access to a wide range of new and emerging information and telecommunications technologies and with assistance and training to use these services;
2. provide State Library staff with the training needed to implement new technology based library services and to assist the public in using these services; and
3. provide leadership in the development of statewide library information and telecommunications.

Technology Assumptions

Operational Library

- The State Library will provide value-added products and services which direct patrons to excellent electronic information.
- Technology-based library services provided by the State Library will be based on patron needs and input.
- Technology which supports library services is rapidly changing and the State Library will respond appropriately in a timely and cost-effective manner.
- The State Library will continuously evaluate evolving and new technologies and new applications of existing technologies for possible use in the library.
- Technological changes have increased customer expectations of and demand for free, convenient and timely information services.
- The State Library will meet increasing customer demands for remote access to information.
- State Library staff will continue to serve as an important link between patrons and electronic information resources.
- State Library staff will be prepared to assist and train the public who will be functioning at a variety of levels of competence.
- A commitment of time, energy and money for ongoing staff training and professional development. is important to the successful integration and use of information technologies.
- State Library staff will be supported by up-to-date technology that ensures the provision of quality services that are efficient and cost effective.
- The State Library will have realistic expectations of the life span of equipment and software and secure adequate funding for replacement and upgrades.

Statewide Library Services

- All libraries will benefit from the State Library's Libraries 2000 technology plan implementation program.
- All implementation plans will, whenever practical, build on existing strengths.
- Local, state (including network) and federal funds will be used to implement the plan.
- The State Library and the Regional Library Cooperatives will work together to ensure a cohesive statewide approach.

Goals Statement

Operational Library

The following goals will assist the State Library in identifying and integrating new technology into its services in a timely and thorough manner:

- Expand access to digital and electronic information for state government employees, New Jersey citizens and New Jersey libraries.
- Empower handicapped persons to customize library services to meet their needs through the use of expanded technology-based library services.
- Develop training opportunities for staff and public in the use of new technologies.
- Enhance the SGIS web pages for CyberDesk to provide an increased range of digital resources and full-text documents to remote users throughout the state.
- Enhance the LDB/LBH web pages to increase library and patron access to up-to-date information about services and programs provided by the Library Development Bureau and Library for the Blind and Handicapped.
- Expand and improve computer hardware used throughout the State Library and the Library for the Blind and Handicapped.
- Expand and improve data and telecommunications connectivity throughout the State Library and the Library for the Blind and Handicapped.
- Upgrade data cabling within the State Library buildings to increase the speed of data delivery.
- Continue to automate library procedures in order to promote efficiency and enhance staff and customer services.

Statewide Services

The vision statement contained in the State Library's statewide technology plan, ***Libraries 2000***, is as follows:

All citizens of New Jersey participate fully and share equitably in the benefits of the information revolution.

This vision statement is being accomplished through the following goals:

- All libraries are linked electronically.
- All libraries have the equipment to implement ***Libraries 2000***.
- All libraries have Internet, World Wide Web access.
- All libraries have access to an online bibliographic database and an interlibrary loan subsystem.
- All libraries have access to full-text periodical articles and information in electronic formats.
- All library staff have the expertise and skills to implement ***Libraries 2000***.
- All citizens of New Jersey are aware of the role of libraries in providing access to information.
- All citizens have access to traditional library services, according to their needs.
- Sufficient funding is available to implement ***Libraries 2000***.

The State Library's technology plan for public library development and statewide services is contained in the following planning documents:

- Libraries 2000: New Jersey's Technology Plan for Libraries in the 21st Century
- New Jersey Library Services and Technology Act: LSTA Five Year Plan: October 1, 1997 - September 30, 2002

Library Services Currently Offered Which Utilize Technology

State Government Information Services (SGIS)

The Dynix integrated online library system's **public access catalog** provides access to the holdings of the State Library's and the Department of Environmental Protection's collections. Within the library there are 11 public access terminals and 25 staff members have terminals at their desks. Remote access to the catalog is provided by dial-in, telnet and the world wide web. The Dynix system also provides automated circulation control, online ordering, serials control and cataloging functions.

Access to numerous **online and CD-ROM databases** for law, government documents, business, reference sources, etc. are provided on a local area network (LAN) accessed by 25 staff and 4 public access PCs and terminals. These databases include: DIALOG, First Search, GPO Access, Legal Trac, InfoTrac, Newark Star Ledger and Trenton Times Index, New Jersey Labor Market Information, NEXIS/LEXIS and Westlaw.

Public Internet access is provided on 5 PCs and on 25 staff PCs using a T-1 line. The public and staff have access to the EbscoHost full-text periodical article and citation database. State Library patrons can access this database onsite or from remote locations via the library's CyberDesk web pages.

The **CyberDesk web pages** provides remote users with: 1) access to the following types of information; and 2) the ability to send for or retrieve the following types of information:

- the library's catalog
- journal indexes, full-text databases, online periodicals in full-text, and legal, business and health databases
- links to hundreds of websites selected by reference staff for their quality and relevancy to State Library major areas of service
- many NJ state government publications in full-text
- send requests for information to State Library reference staff via e-mail
- place requests electronically to borrow books or obtain photocopies of articles held by the library or other libraries throughout the country

- retrieve lists of new books and new New Jersey state government publications

Periodical articles or copies of relevant portions of books are delivered electronically to patrons thereby greatly reducing the time it takes to receive the requested items. Items are sent by e-mail, telefax or scanned and transmitted electronically to a computer using Ariel software.

Interlibrary loan requests from patrons are processed and transmitted online using the OCLC online union catalog database and its interlibrary loan subsystem. The Access Center, a statewide service funded by New Jersey Library Network Aid, locates materials and borrows them online for New Jersey public, academic, school and special libraries using the OCLC online national union catalog database and interlibrary loan (ILL) subsystem. Three 800 toll free lines provide service for incoming and outgoing calls.

Orders for books are sent electronically to book dealers; or orders are placed for materials via the web from online dealers.

State Library holdings for new materials and original cataloging for unique New Jersey publications are input into the OCLC online union catalog database which is accessed statewide by over 120 New Jersey public, academic, special and school libraries.

Library Development Bureau (LDB)

The New Jersey Union List of Serials (NJULS) database contains information on 31,000 periodical and serial titles owned by 625 New Jersey libraries. Through the list, library patrons and staff have access to 194,000 local holdings records for direct forwarding of ILL photocopy requests. LDB funds a contract with the Atlantic County Library to provide online access to the NJULS database for all libraries and citizens in New Jersey via the Internet and dial-in access.

The HUB Library Network is composed of 15 libraries (public and academic libraries and library computer consortia) which blanket the state and provide all public libraries, who are within their designated geographical areas, with rapid, free Internet access, technical assistance and training. Two hundred and sixty public libraries currently receive their Internet services through a Hub Library. The State Library serves as a Hub Library for libraries in Mercer and Hunterdon counties. The network is administered by the Library Development Bureau.

The LDB/LBH web pages provides remote users with access to the following types of information:

- LDB consultant services to assist libraries with such programs as: applying for the E-Rate discount, developing technology plans, seeking grant funding, writing grant proposals, serving multilingual communities, providing interlibrary loan services, etc.
- up-to-date information on State Library funded projects and programs, e.g.; Hub Library Network, Statewide Electronic Interlibrary Loan System, etc.

- services and programs offered by the Library for the Blind and Handicapped
- announcements of grant awards and descriptions of funded projects
- full-text State Library publications and update reports
- access to the New Jersey Union List of Serials
- comprehensive links to New Jersey academic and public libraries' websites and online catalogs
- calendars for conferences

LDB administers **grant programs** utilizing state, federal and private funding to assist public and academic libraries and library computer consortia to purchase state-of-the-art computer equipment and to implement technology-based library services. These grants have included the following types of programs: startup Internet access grants for public and high school libraries; expanding Internet access through existing county and academic libraries and library computer consortia connections; implementing integrated online library systems for public and community college libraries; retrospective conversion of collections to machine-readable records; computer training centers for public libraries; development of online community information files; database access for academic libraries; and grants for Z39.50 and WebPac technologies.

Using the SAS statistical analysis program, libraries electronically file **annual reports** on input and output measures which are used to determine their eligibility for the Per Capita Aid program and the amount of money that will be awarded. Using this data, the State Library annually publishes ***New Jersey Public Library Statistics*** and ***Analyses of New Jersey Public Library Statistics***.

Library for the Blind and Handicapped (LBH)

The **LBH automation system** is used to select and circulate books to library patrons who are blind, visually impaired or handicapped. This system selects appropriate books based on a patron's expressed interests while excluding those books that the patron has already read. The software was developed by Automated System Research & Development (ASR&D) under contract with the Carnegie Library of Pittsburgh, Library for the Blind and Physically Handicapped (CLBPH), the Free Library of Philadelphia, Library for the Blind and Physically Handicapped (PLBPH) and the New Jersey State Library for the Blind and Handicapped (NJLBH).

LBH utilizes specialized screen enlargement and/or text-to-speech software to facilitate **access for walk-in patrons** to the library's online public access catalog (OPAC) and to search the World Wide Web.

The **Audiovision Radio Reading Service** digitally records spoken readings of newspapers at the library each day and supplements these recordings with additional spoken recordings downloaded from satellites. These recordings are then broadcast via a Subsidiary Audio Program (SAP) channel by public television stations in New Jersey to receivers in Central and Southern New Jersey.

Information Technology (IT)

Information Technology (IT) encompasses the technical staff that support all aspects of technology internal and external to the State Library. The unit is comprised of staff with PC, minicomputer and telecommunications expertise who maintain all **data communication hardware** for patron and staff use.

The specific focus of IT activity relates to the **local and wide area networks** (LAN / WAN) to facilitate SGIS, LDB and LBH programs and services.

The unit provides **support services** for the State Library's website, Statewide Electronic Interlibrary Loan System and the HUB Library Network. Additionally, the IT unit provides **consulting and support** for public libraries.

The unit supports an **Intranet site** which provides staff with: answers to frequently asked questions about problems with hardware and software; links to online training for searching the Internet, links to databases of interest to the staff; and online forms. The unit also facilitates an internal **NJSL User Group** which meets quarterly during staff lunch hours to disseminate and share technological information.

State Government Information Services (SGIS)

The **CyberDesk web pages** are maintained by a staff member using Webber software and HTML programming with content and links provided by the SGIS reference staff.

The New Jersey Documents Librarian is involved in a pilot project to **digitize New Jersey state documents and records** of historic importance.

Staff Technological Expertise

Library Development Bureau (LDB)

The LDB/LBH web pages are maintained by a staff member using Webber software and HTML programming with content and links provided by the Library Development and the Library for the Blind and Handicapped staff.

A staff member is responsible for the implementation and administration of the Statewide Electronic Interlibrary Loan System. Each library coming on to the system is profiled for the Ameritech Resource Sharing System (RSS); that profile is set up on the appropriate server; and workstation software is installed on site for ILL personnel to connect to that server at the State Library.

Library for the Blind and Handicapped (LBH)

A staff member is trained in the maintenance of the automated system and is responsible for recommending and implementing upgrades to the system.

A Program Engineer/Technician is trained in the maintenance of Audiovision equipment and is responsible for recommending and implementing upgrades to the audio equipment.

Information Technology (IT)

The unit is comprised of technical staff with PC, minicomputer and telecommunications expertise who maintain Internet access and all data communication hardware for patron and staff use. A staff member is responsible for maintaining the DYNIX integrated online library system.

Technology and the Customer Committee

This committee, composed of SGIS, LDB and IT staff, has accomplished the following:

- raised the consciousness among State Library staff about the importance of customers, user-friendly technology and customer outreach concerning technology;
- designed and refined the web based patron access catalog search screens and help screen system; and
- promoted the CyberDesk web pages and all State Library services, to State government employees, Thomas Edison staff, the Legislature and New Jersey public libraries.

Staff and Patron Training to Make Effective Use of Technology-Based Library Services

Staff Training

Staff in the State Government Information Services and the Library Development Bureaus have been trained on Windows 95, Internet searching, e-mail, word processing, searching the Dynix OPAC databases and the EbscoHost citation and full-text periodical database. Various staff utilize other business application software: Access, Excel, Power Point, Microsoft Publisher, Webber, Lotus 1-2-3, etc.

In-house staff training in Windows 95, provided by Thomas Edison State College, was sponsored by the

Technology and the Customer committee; and Microsoft Outlook E-mail training was provided by the chair of the committee.

Staff attend programs on various software applications which are provided by the Central Jersey Regional Library Cooperative computer training center. Desk copies of books are purchased to assist staff to learn software applications.

Staff attend programs on technology and technology-based library services sponsored by the Rutgers University School of Communication, Information and Library Studies, PALINET, Regional Library Cooperatives and the New Jersey Library Association.

Reference staff receive training in searching specialized databases such as DIALOG, LEXIS/NEXIS, etc.

The Library Development Bureau regularly sends staff to the **Computers in Libraries Conference** and the **National Online Meeting Conference**. Staff have attended conferences and workshops on the Internet, local area networks, telecommunications, digitization of library collections, electronic resource sharing, metadata, development of websites, development of intranets, etc.

The Information Technology unit has attended training in the following areas: Novell system and workstation administration, Microsoft NT 4.0 system and workstation, Microsoft 95 workstation, Microsoft Exchange E-mail Server, Ameritech's Dynix system administration, Ameritech's WEBpac web proxy server, Cisco router operations, etc.

Library for Blind and Handicapped staff utilizes in-house training for both the library automation system and the use of assistive technology. LBH is migrating from Apple PCs to using PCs operating Windows 95 and the Office 97 Suite. Staff will receive training in Fall 1999.

Patron Training

At the State Library **patrons are provided training on demand** to use the OPAC, CD-ROM databases and the EbscoHost citation and full-text periodical databases.

A **Help Desk for Electronic Resources** provides technical assistance and training regarding web and database use to onsite patrons and persons calling in for assistance. A staff member provides the public with hands-on training classes at lunchtime and other scheduled times on how to use the Internet.

Legislators and their staff receive training at their offices in the use of online databases linked to the CyberDesk web pages. Training is provided on demand by a PC specialist.

Library Development staff provide **consulting** to staff at all types of libraries on automation issues, Internet access, implementing integrated online library systems, applying for the E-Rate discount and

preparing technology plans.

LDB staff provides **training on using the Statewide Electronic Interlibrary Loan System**. Staff also conduct a 4 day workshop on training librarians to use technology to provide patron and staff training.

Technical assistance sessions for potential applicants are provided for each technology grant program offered by the Bureau. An LDB grant preparation manual and links to sites to grant information are provided on the LDB/LBH web pages.

At the Library for the Blind and Handicapped, walk-in patrons receive **one-on-one training** from library staff. LBH hosts an annual Spring Fair at which vendors selling assistive devices introduce patrons to what is available and to new technological enhancements.

Information Technology staff provide **technical assistance to Hub Libraries** and their related downstream libraries for PC and local and wide area network (LAN / WAN) telecommunications issues.

Equipment and Services Currently Available to Provide Technology-Based Library Services

State Library

Workstations on Local Area Network (LAN)
The State Library has 8 Hewlett-Packard Vectra workstations for the public and 54 Pentium PC workstations used by staff. All terminals are presently connected to the local area network (LAN) which encompasses a variety of file servers.

Ten Bay Network 450 Switches are used for LAN connectivity. Two of the 10 are 12 port devices and 8 of the 10 are 24 port devices. Each Switch is capable of virtual local area network (VLAN) technology.

Workstations Specifications

41 H/P Vectra PCs
    Pentiums with Pentium, Pentium II, and Pentium Pro processors. The Pentiums contain 32 MB of RAM, 1-2 GB Hard Drives. The Pentium IIs contain between 32 and 64 MB of RAM, 2-4 GB Hard Drives.
14 Dell OptiPlex GM5100 PCs
    Pentium processors
11 AST Bravo MS5100 PCs

. Pentium processors
1 Gateway PC
Pentium processor

All PCs run Windows 95 with the exception of those used by the Information Technology staff, which run NT 4.0 and Windows 98. All PCs run Netscape Navigator for public and staff Internet access and Norton's Anti-Virus software. Public PCs run Fortress and Ikiosk for security.

Servers
File servers perform the following functions: Dynix subsystem functions, File and Print service, E-Mail, WEB, FTP, Fire Wall and DNS (Domain Names Service).

- The Dynix Server is a Unix server, running AIX 4.2.1 on an IBM RS6000, model C-10. This server houses the database containing the library's holdings and runs the Integrated Online Library System which is a package of circulation, acquisitions, serials, cataloging, and online public access catalog (OPAC) modules provided by Ameritech.
- Three Windows NT servers provide mail, file, applications and web host services to library staff and patrons. A fourth server provides firewall services. All NT servers are running Microsoft NT Server 4.0 with service pack 3 applied to the Web Service and Firewall servers.
- Two Linux servers, running Red Hat 5.2 on a Pentium workstation provides Internet Services, TCP/IP connectivity and mailing list services.
- A NetWare file server runs Net Server 4.0 with a 1000 user license.
- Nine Windows NT servers provide Interlibrary Loan client server applications.

Telecommunications Equipment
The State Library owns Cisco 2501, 2505 and 7507 routers. The 2501 router is used for remote dial-in connectivity. The 2505 router is used by computers at the Library for the Blind and Handicapped to get to the Frame Relay WAN and subsequently to the Internet. The 7507 router is used for Internet connectivity and for WAN connectivity for departmental branch libraries and for State Library HUB downstream libraries. This router uses 56KB, T1, Point to Point T1 and T1 SMDS for WAN connectivity. The State Library also leases a 1602 router from OCLC, Inc. to support dedicated 56K connectivity for 15 workstations using the OCLC cataloging and interlibrary loan subsystems.

A dial-in modem pool is maintained for patrons who do not have Internet connectivity to remotely access the library's catalog. The modem pool is comprised of 16 56Kbps Multitech modems.

The State Library and the Library for the Blind and Handicapped use a Centrex telephone system.

Other Equipment
Technical Services, Interlibrary Loan and the Access Center use 15 PCs connected to the OCLC online union library catalog to process books and interlibrary loan requests.

Three laptop computers are used for: telecommunications/data packet analysis (Toshiba 486); presentations and educational demonstrations at offsite events (Dell Pentium); and LAN / WAN trouble shooting and telecommuting purposes (WinBook Pentium II).

Printers: 6 H/P LaserJet printers; 29 H/P DeskJet printers; and 1 H/P 755 Color 36" Roll Plotter.

NT 4.0 Servers / PCs are used for scanning, imaging and microfiche purposes.

Library for the Blind and Handicapped (LBH)

A Digital VAX 4105 minicomputer running ASR&D specialized library-for-the-blind software for online catalog, book selection and circulation functions, is accessed by:

- 18 digital text-based terminals used by staff; and
- 2 Gateway PCs with screen enlargement and text-to-speech capability which are available for walk-in patrons to have access to the online catalog.

A digital audio recording local area network (LAN) for the Audiovision Radio Reading Service includes:

- 4 PCs for digital audio recording utilizing 13 digital signal processing (DSP) boards and 5 network interface cards (NIC);
- A Pentium PC file server with 5 user NetWare license and duplexed 4.0 GB SCSI hard drives;
- 2 satellite systems;
- Studio Transmitter Link (STL) from the LBH studios to the New Jersey Network transmitter;
- 1,200 UHF Subsidiary Audio Program (SAP) audio receivers; and
- test equipment for UHF receivers, audio recording and broadcast equipment.

Cabling and Electrical Support for Technology-Based Library Services

State Library

The Library is cabled with 211 IBM type 3 STP cable runs and 44 certified Category 4 and 5 UTP cable runs. Levels one and four have been upgraded to 5 UPT cabling. Each of the 5 floors of the library connect to one of five 62.5/124 micron fiber optic cables which home run to the computer room.

The building's electrical service is adequate to meet current needs; a power conditioner protects the servers and other equipment in the computer room.

Library for the Blind and Handicapped (LBH)

The library recently replaced 18 legacy Digital DECnet cable runs with 140 Category 5 cable runs. Access to the legacy mainframe is now available via the Category 5 cable runs. The building electrical service is adequate to meet current needs; a power conditioner protects the mainframe.

Funding Available for Technology-Based Library Services

The State Library's operating budget (including costs for the Library for the Blind and Handicapped) contains $330,000 to cover: telecommunications, hardware and software maintenance (DYNIX, Cisco router, LBH automation system, Audiovision); OCLC interlibrary loan and cataloging fees, and online and CD-ROM licenses. The State Library's operating budget also provides funds for staff training and attendance at conferences and workshops.

The contract with Ameritech Library Services for its Resource Sharing System (RSS) for the Statewide Interlibrary Loan System is $360,000.

In FY 1999 the State Library received a capital appropriation of $5,000,000 in the State budget for technology upgrades which included: PC upgrades, microfilm reader printers, scanning equipment, servers, computer training room and an upgrade for the LBH automated system.

The FY 2000 budget requests $550,000 for the State Library and $329,000 for the Library for the Blind and Handicapped in a capital appropriation for technology.

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New Jersey State Library Technology Plan, 1999 - 2001

Technology-Based Library Services That Will Be Offered in Years 1999 - 2001

Year: 1999

State Government Information Services (SGIS)

- Expand access to New Jersey state government publications by scanning into CyberDesk important full-text documents.
- Provide full-text of legislative history documents on CyberDesk.
- Offer the public and staff online access to the full-text of the **Star-Ledger** *and* ***Trenton Times***.
- *Expand CD-ROM local area network (LAN) by adding additional CD's.*
- *Continue to switch to electronic delivery by fax or computer as basic methods of information distribution so that patrons will be able to place requests for library materials electronically, either at the library or from remote locations. Transmit documents electronically through the RLG Ariel project.*
- *Increase speed of cataloging by providing web access to the OCLC online union catalog database.*

Library Development Bureau (LDB)

- *Expand the number of public libraries getting their Internet access through a Hub Library by targeting those 50 libraries who have not joined the HUB Library in their designated geographical area.*
- *Fund a statewide contract for the* ***Informe*** *database which provides Spanish language references to over 65,000 articles, many of which are available in full-text. All public libraries receiving their Internet services through a Hub Library have access to this database.*
- *Fund a grant program for Computer Training Centers in Public Libraries.*
- *Fund a grant program for libraries who will participate in the first phase of the Statewide Interlibrary Loan System to purchase WebPac and Z39.50 related hardware and software.*
- *Implement first year of the Statewide Electronic Interlibrary Loan System project which will create a statewide virtual library catalog utilizing the holdings in a variety of Integrated Online Library Systems vendor databases. Patrons and staff will be able to use their home library card to*

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- *access any resource from a participating library throughout the state. The steps to implementing the first phase of the system are as follows:*
  - *sign a contract with Ameritech Library Services for their Resource Sharing System (RSS);*
  - *install 9 servers at the State Library;*
  - *test the system with a pilot library;*
  - *vendor trains 6 ILL librarians and 6 systems librarians;*
  - *implement RSS at libraries that have Dynix integrated online library systems with WebPAC and Z39.50 technology;*
  - *implement RSS at 3 borrowing-only libraries; and*
  - *implement and train the remaining first phase non-Dynix libraries whose integrated online library systems have WebPac and Z39.50 technology.*
- *Using Technology Bond Fund money, fund a grant program for 2.5 million dollars, to provide public libraries with technology which supports access to electronic information resources; replaces out-of-date, inadequate computer equipment; and supports patrons' effort to acquire new computer-related skills and knowledge needed to succeed in our rapidly changing society.*

Library for the Blind and Handicapped (LBH)

- *Upgrade the library's communication infrastructure:*
  - *In preparation for replacing its existing non-Y2K-compliant automation system with a Y2K-compliant automation system the library will replace its terminal/mainframe-based communication architecture with a LAN and replace dumb terminals with PCs.*
  - *Migrate the library's automated system to a Y2K-compliant automated system.*
  - *Provide access to LBH's online public access catalog (OPAC) via the Internet using an interface optimized for use with assistive technology.*
  - *Improve service to New Jersey residents who are deaf by purchasing a TTY with built-in answering machine.*
- *Expand the Audiovision Radio Reading Service's broadcast area to cover entire state.*
- *Initiate alternative methods to reach Audiovision listeners.*

Year: 2000

State Government Information Services (SGIS)

- *Add photocopy or scanning technology to transmit photocopy image directly from the book to patrons.*
- *Replace dumb Dynix integrated library system terminals with 11 public use PCs providing access, via the Internet, to the library's online public access catalog, a full-text and citation periodical database and access to other library catalogs for patron-initiated interlibrary loan (ILL) requests.*
- *Implement the new Statewide Electronic Interlibrary Loan System for State Library patrons to improve the borrowing and lending of materials.*
- *Establish a computer training center with 8 PCs to provide hands-on training for patrons and staff*

- *to search the Internet and other databases and to provide patrons with word processing capabilities.*
- *Evaluate the Dynix integrated online library system and determine whether a migration to another system would be beneficial to the State Library and its patrons.*
- *Develop fax technology for all staff that have computers.*
- *Continue to evaluate and add new electronic databases to the CD-ROM Tower.*
- *Consistent with licensing capabilities, expand the CD-ROM LAN and State Library Intranet to branch libraries in the Department of Environmental Protection, Department of Transportation and the Department of Banking and Insurance.*

Library Development Bureau (LDB)

- *Implement State Library listserv to broadcast information to public and academic libraries.*
- *Investigate, evaluate and contract for commercial databases appropriate for statewide licenses.*
- *Purchase an information kiosk for the State House to provide legislators and visitors with electronic access to information contained in the State Library's website, the State Library's catalog; the State of New Jersey's* ***In Touch*** *website and World Wide Web resources. Users of the kiosk will be able to request a book or article from the State Library and e-mail reference questions to the staff.*
- *Fund a second round of a grant program for Computer Training Centers in Public Libraries.*
- *Fund a grant program for libraries who will participate in the second phase of the Statewide Electronic Interlibrary Loan System to purchase WebPac and Z39.50 related hardware and software.*
- *Implement Phase 2 of the Statewide Electronic Interlibrary Loan System: vendor trains 6 ILL and 6 system librarians; implement RSS at libraries that have Dynix integrated online library systems with WebPAC and Z39.50 technology; implement RSS at 5 or more borrowing-only libraries; implement and train the remaining second phase non-Dynix libraries whose integrated online library systems have WebPac and Z39.50 technology.*
- *Continue to administer the HUB Library Network.*
- *Using Technology Bond Fund money, fund technology grant programs for public and academic libraries and library computer consortia.*

Library for the Blind and Handicapped (LBH)

- *Enhance the library automation system by upgrading the relational database engine.*
- *Add a telephony service that will provide OPAC-like access via a touch-tone telephone for patrons who do not have a computer.*
- *Improve the library's Assistive Device Loaner Program by adding Small Area Listening Systems to the library's collection of assistive devices.*
- *Expand the Audiovision Radio Reading Service's listening audience.*

Year: 2001

State Government Information Services (SGIS)

- *Provide links to full-text of electronic materials from the library catalog.*
- *Archive electronic material relevant to patron research.*
- *Provide on-demand digital scanning of information relevant to patron research.*
- *Increase storage of scanned material by increased memory or production of compact discs which can be lent to patrons.*
- *Provide* ***Books In Print*** *in electronic format to facilitate book selection.*
- *Experiment with touch screen and voice activated PCs for patron use.*

Library Development Bureau (LDB)

- *Fund grants to libraries to create local information databases which are made available to all libraries and library users throughout the state via the Internet. Examples of such databases include: digitized local history or other unique and important resources; municipal and county government information; community information; New Jersey newspaper indexes; unique files of New Jersey information; consumer health information, etc.*
- *Fund a distance learning pilot project in which a public library and/or a library computer consortium will be provided with the necessary technological upgrades to provide distance learning programs in coordination with the State Library, Thomas Edison State College and other providers.*
- *Fund a grant program for libraries who will participate in the third phase of the Statewide Electronic Interlibrary Loan System to purchase WebPac and Z39.50 related hardware and software.*
- *Implement Phase 3 of the Statewide Electronic Interlibrary Loan System: vendor trains 6 ILL and 6 system librarians; implement RSS at libraries that have Dynix integrated online library systems with WebPAC and Z39.50 technology; implement RSS at 5 or more borrowing-only libraries; implement and train the remaining third phase non-Dynix libraries whose integrated online library systems have WebPac and Z39.50 technology.*
- *Continue to administer the Hub Library Network.*
- *Fund technology grant programs for public and academic libraries and library computer consortia.*

Library for the Blind and Handicapped (LBH)

- *Establish a pilot program to deliver digital copies of recorded books via the Internet by:*
  - *converting selected library cassette titles to digital format*
  - *establishing separate library website*
  - *Broaden the Audiovision Radio Reading Service's listening audience with new technology.*

Staff and Patron Training Required to Make Effective Use of New or Expanded Technology-Based Library Services That Will Be Implemented in the Next Three Years

Staff Training

The addition of a computer training center with 8 PCs will provide staff with hands-on computer and software training. Regular classes will be scheduled. A training office will be established which will coordinate use of the computer training center, provide some classes, arrange for outside trainers, etc.

Staff will continue to attend programs on various software packages which are provided by the Central Jersey Regional Library Cooperative computer training center. Desk copies of books will be purchased to assist staff to learn software applications.

Staff will continue to attend programs on technology and technology-based library services sponsored by the Rutgers University School of Communication, Information and Library Studies, PALINET, Regional Library Cooperatives and the New Jersey Library Association.

Reference staff will continue to receive training in searching specialized databases such as DIALOG, LEXIS/NEXIS, etc.

Staff will receive training in digitizing collections.

The Library Development Bureau will continue to regularly send staff to ***Computers in Libraries Conference*** *and the* ***National Online Meeting Conference****. Staff will attend workshops on technical topics currently being researched or implemented by the Bureau and on other topics such as Internet, local area networks, telecommunications, digitization of library collections, metadata, development of websites, development of intranets etc.*

The Information Technology unit will attend training in the following areas: Bay Networks switch management, Bay Networks optivity, Web design, Adobe PhotoShop, basic and advanced telecommunications, Microsoft SQL server, Linux, Unix, etc.

Selected Library for Blind and Handicapped staff will receive training from vendors supplying equipment for the library automation system, Audiovision Reading Service and for assistive devices. These staff will provide in-house training for the rest of the staff.

LBH is migrating from Apple PCs to using PCs operating Windows 95 and the Office 97 Suite. Staff will

attend classes conducted by Thomas Edison State College MIS department and the Central Jersey Regional Library Cooperative computer training center. There will be additional training classes for core personnel.

Patron Training

The addition of a computer training center with 8 PCs will enhance the State Library's ability to provide patrons with hands-on training to search the Internet and to use online, full-text magazines and periodical indexes and other databases provided by the State Library. The State Library will host training classes for patrons as well as providing one-on-one training for walk-in patrons.

Patrons will continue to be provided with training on demand to use the OPAC, CD-ROM databases, EbscoHost citation and full-text periodical database and to search the Internet.

A Help Desk for Electronic Resources will continue to provide technical assistance and training regarding web and database use to onsite patrons and persons calling in for assistance.

Reference staff will continue to answer questions submitted online via the ***CyberDesk*** *web pages.*

Legislators and their staff will continue to receive training on demand at their offices in the use of online databases linked to the ***CyberDesk*** *web pages.*

At the Library for the Blind and Handicapped, walk-in patrons will continue to receive one-on-one training from library staff.

LBH will continue to host an annual Spring Fair at which vendors selling assistive devices introduce patrons to what is available and to new technological enhancements.

Library Development staff will continue to provide consulting to staff at all types of libraries on automation issues, Internet access, implementing integrated online library systems, applying for the E-Rate discount, preparing technology plans. LDB staff will continue to provide training on using the Statewide Electronic Interlibrary Loan System. Staff will also continue to conduct a 4 day workshop on training librarians to use technology to provide patron and staff training. Technical assistance sessions for potential applicants will be provided for each technology grant program offered by the Bureau. An LDB grant preparation manual and links to sites to grant information are provided on the LDB/LBH web pages.

Information Technology staff will continue to provide technical assistance to Hub Libraries and their related downstream libraries for PC and local and wide area network (LAN / WAN) telecommunications issues.

Equipment, Services & Upgrades Required to Provide Technology-Based Library Services for years 1999 - 2001

Year: 1999

Information Technology (IT) Implementation and Support for State Library Services

- *Upgrade one third of the electronic equipment in the library each year in order to take advantage of new software and hardware.*
- *Add 10 new digital microfilm reader/printers which are capable of transmitting images directly to a library requestor by fax or e-mail.*
- *Purchase new CD-ROM Tower and read-writable CD-ROM.*
- *Implement remote access to the local area network (LAN).*
- *Initiate VLAN within the State Library.*
- *Upgrade Router(s) IOS (operating systems).*
- *Provide redundancy when network resources become unavailable.*
- *Contract with BANI or Cisco for Router(s) and CSU / DSU maintenance and support.*
- *Initiate a data gathering and monitoring contract with Bell Atlantic to understand how the library's connectivity is used and how it can be maximized.*
- *Purchase cell phones for Information Technology unit staff.*

Library for the Blind and Handicapped (LBH)

- *Install local area network (LAN) installation which includes:*
  - *2 Nortel BayStack 24-port switches*
  - *Cisco router*
  - *Hewlett Packard (HP) LH3 dual-Pentium server*
  - *24 HP Vectra PCs running Windows NT Workstation which access the legacy mainframe via a terminal emulation program*
- *Replace library automation system with:*
  - *HP LH4 quad-XEON processor server; and*
  - *OPAC access, via the Internet, for library patrons with computers*
- *Purchase Ultratec 4425 TTY with built-in answering machine*
- *Add TTY software to appropriate PCs*
- *Expand the Audiovision Reading Service broadcast area to provide state-wide service:*
  - *initiate live RealMedia G2 streaming audio of Audiovision with a local Internet Service Provider (ISP)*
  - *upgrade TFT Studio Transmitter Link (STL). The upgrade includes: refurbishing and*

- *tuning existing transmitters; adding an automatic changeover system; replacing existing receivers; and adding a 4 channel digital encoder and decoder.*
  - *300 UHF and cable Subsidiary Audio Program (SAP) receivers from Comptrol, Inc.*
  - *400 receivers modified for service in new broadcast area in northern NJ*
  - *ISP service charges for audio streaming of Audiovision signal (ISP will require the loan of an Audiovision receiver)*
  - *HTML changes to LBH web page to link with Audiovision RealAudio G2 signal*

Year: 2000

Information Technology (IT) Implementation and Support for State Library Services

- *Replace 11 dumb Dynix terminals with PCs which will provide access to Dynix subsystem modules, the online public access catalog and the Internet.*
- *Purchase 8 PCs for the computer training center and configure connectivity to backbone.*
- *Install networkable fax capability across the entire LAN.*
- *Establish a multidisk RAID data warehouse for storage of and access to CD-ROM data by purchasing RAID data storage hardware.*
- *Add additional data communication lines to reduce any degradation of service as the use of the Internet and transmission of interlibrary loan transactions increases.*
- *The State Library will expand the T1 SMDS with a 4MB line, then possibly migrate to a 10MB line. Connectivity to the Frame Relay network will migrate from the existing T1 to multiple T1s, possible a T3 (DS-3).*
- *Investigate ATM connectivity to replace the SMDS under current use.*
- *Continue data information gathering provided by Bell Atlantic to determine how the WAN is being used and how it can be maximized.*
- *Contract with BANI or Cisco for router(s) and CSU / DSU maintenance and support.*
- *Continue a program of PC replacement to keep the network desktop structure current by purchasing workstations to replace superseded or obsolete equipment.*

Library for the Blind and Handicapped (LBH)

- *Add touch-tone access for library patrons by purchasing:*
  - *Dialogic ProLine telephony board*
  - *Artisoft Visual Voice text-to-speech software*
- *Upgrade Library database:*
  - *Microsoft (MS) Access2000, MS SQL Server or Oracle-i to replace the Access97 relational database software*
  - *expansion of memory in LH4 to 4GB maximum*
- *Upgrade and convert local area network (LAN) and digital audio delivery system to produce RealMedia G2 files with capability to use these files for SAP broadcast:*
  - *introduce on-demand RealMedia G2 content with an Audiovision web-server.*

- *purchase HTML and Java development tools specialized for RealMedia work on the web.*

Year: 2001

Information Technology (IT) Implementation and Support for State Library Services

- *Purchase upgraded Network Operating Systems.*
- *Purchase replacement workstations to replace superseded or obsolete equipment.*
- *Investigate DVD-ROM as a replacement for CD-ROM.*
- *Investigate touch screen and voice activated PCs for patron use.*
- *Continue data information gathering provided by Bell Atlantic to determine how the WAN is being used and how it can be maximized.*
- *Contract with BANI or Cisco for router(s) and CSU / DSU maintenance and support.*

Library for the Blind and Handicapped (LBH)

- *Purchase DVD recording hardware and software to convert 100 recorded titles to G2 digital format.*
- *Purchase LINUX-based dedicated web server to deliver G2-format digital books via the Internet.*
- *Purchase DVD array to provide access to all converted recorded titles.*
- *Upgrade the Audiovision Radio Reading Service's Internet access:*
  - *install additional T-1 lines*

Upgrades to Cabling and Electrical Support Required to Implement Future Technology-Based Library Services

State Library

- *Complete a facility-wide upgrade and replacement of substandard cable on levels 2, 3 and 5 of the State Library building to Category 5 UTP.*
- *Upgrade the power supply and electrical systems in the Computer Room to support the additional hardware scheduled for acquisition.*

Library for the Blind and Handicapped (LBH)

The library recently replaced 18 legacy Digital DECnet cable runs with 140 Category 5 UTP cable runs.

No upgrades in cabling or electrical support are required.

The installation of a fiber backbone will complete the cabling upgrade at LBH.

The Technology Committee will review the plan yearly in order to keep pace with technology and technology-based library services which are changing dramatically. The Committee will update this plan as necessary during the three year cycle.

Evaluation Plan Measuring the Effectiveness of Technology-Based Library Services

Year: 1999

State Government Information Services (SGIS)

- *Count number of contacts (hits) made to the CyberDesk web pages.*
- *Evaluate comments on website*
- *Evaluate decreased delivery time by surveys of effectiveness*

Library Development Bureau (LDB)

- *Evaluations of technology projects funded by state and federal grants are prepared by recipients and reviewed by LDB program managers. Based on these reports, the Program Managers prepare an evaluation for each of the grant programs they supervised.*
- *Prepare the Library Services and Technology Act Annual Report which contains an analysis of federally funded library technology grants.*

Library for the Blind and Handicapped (LBH)

- *Measure level of disruption caused by terminal to PC change*
- *Record count of users utilizing TTY answering service*
- *Monitor use of TTY software*
- *Measure growth of the Audiovision Radio Reading Service's listening audience*

Information Technology (IT)

- *Initiate a data gathering and monitoring contract with Bell Atlantic to understand how the library's connectivity is being used and how it can be maximized*

Year: 2000

State Government Information Services (SGIS)

- *Evaluate training center success by:*
  - *requests for classes*
  - *class attendance*
  - *evaluation of classes by attendees*
  - *Training committee will review results of evaluations to determine direction of training programs.*
- *Continue to evaluate decreased delivery time by surveys of effectiveness.*
- *Evaluate improved access to Dynix or a comparable system by surveys for staff and patrons.*

Library Development Bureau (LDB)

- *Hire a consultant to prepare a study evaluating the effectiveness of the HUB Library Network.*
- *Evaluate the Statewide Electronic Interlibrary Loan System based on the following criteria: increase in the number of libraries participating in the system; user satisfaction; increase in the number of items filled in state; and decrease in the number of items filled out-of-state.*
- *Evaluations of technology projects funded by state and federal grants are prepared by recipients and reviewed by LDB program managers. Based on these reports, the Program Managers prepare an evaluation for each of the grant programs they supervised.*
- *Prepare the Library Services and Technology Act Annual Report which contains an analysis of federally funded library technology grants.*

Library for the Blind and Handicapped (LBH)

- *Measure level of disruption caused by the new automation system including a comparison of the items circulated with the previous year's circulation.*
- *Measure performance changes caused by database and server upgrades.*
- *Record count of hits on the OPAC and the number of requests processed through OPAC.*
- *Survey patrons who make requests via the OPAC.*
- *Record count of calls to the Touch-Tone-OPAC.*
- *Survey patrons who make requests via the Touch-Tone-OPAC.*
- *Record count and duration of hits on the Audiovision Radio Reading Service's audio site.*

Information Technology (IT)

- *Continue data information gathering from Bell Atlantic to determine how the WAN is being used and how it can be maximized.*

Year: 2001

State Government Information Services (SGIS)

- *Continue to evaluate training center program.*
- *Evaluate the success of digital project by the number of requests to scan materials, the number of requests for disks and the materials committed to archival storage.*

Library Development Bureau (LDB)

- *Evaluate the Statewide Electronic Interlibrary Loan System based on the following criteria: increase in the number of libraries participating in the system; user satisfaction; increase in the number of items filled in state; and decrease in the number of items filled out-of-state.*
- *Evaluations of technology projects funded by state and federal grants are prepared by recipients and reviewed by LDB program managers. Based on these reports, the Program Managers prepare an evaluation for each of the grant programs they supervised.*
- *Prepare the Library Services and Technology Act Annual Report which contains an analysis of federally funded library technology grants.*

Library for the Blind and Handicapped (LBH)

- *Record count of downloads of digital books via the Internet.*
- *Record count and duration of hits on the Audiovision Radio Reading Service's audio site and compare with previous year.*

Information Technology (IT)

- *Continue data information gathering from Bell Atlantic to facilitate how the WAN is being used and how it can be maximized.*

NJ State Library

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